There can be no question as to the validity of the family Tetillidæ, its members are united by a nexus of characters, one or another of which may disappear without any danger of the family character being lost.

The most persistent characters are the following :—the aggregation of the megascleres into radially directed fibres ; the form of the protriæne, anatriæne, and sigmaspire.

Oxeas are always present, but these spicules are too generally distributed to be of much service in classification ; they are so commonly anisoactinate in the Tetillidæ that in this particular they might be regarded as distinctive.

The cortex, once supposed to be of ordinal value, for Schmidt's families are equivalent to the orders of more modern spongologists, subsequently of subordinal value (Wyville Thomson), later of family value (Sollas), is now reduced to the distinguishing of genera, though in some cases it may define a family. In the Tetillidæ it is of generic value only.

The chamber-system may in other groups furnish characters for the definition of families, but not in the Tetillidæ, since the change from the eurypylous type to the aphodal takes place too gradually, the genus *Craniella* with its aphodal system being united to *Tetilla* with a eurypylous system through the intermediate genera, *Cinachyra* and *Chrotella ;* lest it may be objected that this remark is in opposition to those already made with reference to the possibility of intermediate forms existing between families, I would add that as a matter of convenience the subdivision of the Tetillidæ into two or more families has nothing to recommend it, for *Cinachyra* and *Chrotella*, while intermediate genera as regards the chamber system, are not intermediate but rather aberrant in other respects. Till our knowledge of the group is increased we must leave the aphodal and eurypylous Tetillidæ to form together one family.

The protriæne is highly characteristic and constant, but while it serves well to define the family, it is of no further use since it is not exactly repeated in any other group of sponges, or only very rarely.

The aggregation of the megascleres into radial fibres, chosen by Wyville Thomson as a character for the definition of an order—the Radiantia,—on which considerable stress has lately been laid by Vosmaer in the classification of the Monaxonida,[1] is of very doubtful importance ; in primitive forms, such as *Placina* and its immediate derivatives, it is wholly absent, the only approach to it being found in the orientation of the trilophous candelabras of *Placina trilopha*, which are directed near the surface in the manner of triænes ; throughout the whole of the Asterophora and the Sigmatophora the radial arrangement is prevalent, the most striking exception occurring in the family Pachastrellidæ, and even here in some genera the rhabdous spicules lie in bundles which tend to a radial direction. On the other hand, within the limits of a single family the radial arrangement may break down ; thus in the Theneidæ, which appears to be a very natural family, a perfectly radial arrangement characterises the genus *Thenea*, but none of the

[1] Vosmaer, Bronn's Klass. u. Ord. d. Thierreichs, Porifera, pp. 326, 328.